AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends located on an end surface of the honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with the cell ends opened at the end surfaces and closing a part of the cell ends at an end surface of the honeycomb structure body, the cell end closing step including the substeps of;

attaching a film to said end surface of the honeycomb structure body in such a manner as to cover at least a part of the cell ends,

forming through holes by thermally melting or burning off the film located at the cell ends to be closed,

dipping said end surface in a slurry containing an end surface closing material thereby to cause the slurry to enter the cell ends by way of the through holes, and

hardening the slurry while at the same time removing the film, wherein said through holes are formed in the film by radiating a high-density energy beam to the film and thereby melting or burning off the film, wherein said through holes are formed using the high-density energy beam in such a manner that the high-density energy beam is radiated first at the center of each through hole to be formed and the position of radiation is relatively displaced spirally to increase the diameter of the through hole to the desired size, and

wherein a transparent or translucent film is used and the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by an image processing means for recognizing the positions of the cell ends visually through the film attached to the end surface of the honeycomb structure body.

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface.

Claims 2 and 3. (canceled).

4. (original) A method of manufacturing a ceramic honeycomb structure according to claim 1, wherein said high-density energy beam is a laser beam.

5. (currently amended) A method of manufacturing a ceramic honeycomb structure according to ~~claim 3~~ claim 30 or 31, wherein said high-density energy beam is a laser beam.

6. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends located on the end surfaces of the ceramic honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with all the cell ends open on the end surfaces;

attaching a transparent or translucent resin film in such a manner as to cover one of the end surfaces of the honeycomb structure body;

forming through holes by radiating a high-density energy beam and thus melting or burning off the resin film portions located at the cell ends to be closed;

placing the honeycomb structure body on a base with the end surface having the resin film attached thereto up and the other end surface down;

charging the masking powder by way of the through holes of the resin film and depositing the masking powder at the cell ends of the other end surface;

forming mask portions by hardening the deposited masking powder;

dipping each end surface in a slurry containing an end surface closing material, and causing the slurry to enter the cell ends by way of the through holes at the end surface having the resin film attached thereto, and by way of openings lacking the mask portions at the end surface having the mask portions; and

hardening the slurry while at the same time removing the resin film and the mask portions,

wherein said masking powder contains a mixture of resin powders, at least one of said resin powders having a melting point,

wherein the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by use of image processing means for recognizing the positions of the cell ends visually through the resin film attached to said end surfaces,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface.

Claim 7. (canceled).

8. (original) A method of manufacturing a ceramic honeycomb structure according to claim 6, wherein the high-density energy beam is a laser beam.

9. (original) A method of manufacturing a ceramic honeycomb structure according to claim 6, wherein said masking powder contains thermosetting resin powder.

Claim 10. (canceled).

11. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends located on the end surfaces of the ceramic honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with all the cell ends open on the end surfaces;

attaching a transparent or translucent resin film in such a manner as to cover one of the end surfaces of the honeycomb structure body;

forming through holes by radiating a high-density energy beam and thus melting or burning off the resin film portions located at the cell ends to be closed;

placing the honeycomb structure body on a base with the end surface having the resin film attached thereto up and the other end surface down;

charging the masking powder by way of the through holes of the resin film and depositing the masking powder at the cell ends of the other end surface;

forming mask portions by hardening the deposited masking powder;

dipping each end surface in a slurry containing an end surface closing material, and causing the slurry to enter the cell ends by way of the through holes at the end surface having the resin film attached thereto, and by way of openings lacking the mask portions at the end surface having the mask portions; and

hardening the slurry while at the same time removing the resin film and the mask portions,

wherein said masking powder contains thermosetting resin powder, ~~and~~

wherein said masking powder contains a foaming agent.

wherein the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by use of image processing means for recognizing the positions of the cell ends visually through the resin film attached to said end surfaces,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface.

12. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends located on the end surfaces of the ceramic honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with all the cell ends open on the end surfaces;

attaching a transparent or translucent resin film in such a manner as to cover one of the end surfaces of the honeycomb structure body;

forming through holes by radiating a high-density energy beam and thus melting or burning off the resin film portions located at the cell ends to be closed;

placing the honeycomb structure body on a base with the end surface having the resin film attached thereto up and the other end surface down;

charging the masking powder by way of the through holes of the resin film and depositing the masking powder at the cell ends of the other end surface;

forming mask portions by hardening the deposited masking powder;

dipping each end surface in a slurry containing an end surface closing material, and causing the slurry to enter the cell ends by way of the through holes at the end

surface having the resin film attached thereto, and by way of openings lacking the mask portions at the end surface having the mask portions; and

hardening the slurry while at the same time removing the resin film and the mask portions,

wherein said masking powder contains thermosetting resin powder, ~~and~~

wherein said masking powder contains a fluidity improver for improving the fluidity at the time of charging the masking powder,

wherein the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by use of image processing means for recognizing the positions of the cell ends visually through the resin film attached to said end surfaces,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface.

Claims 13 and 14. (canceled)

15. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends at an end surface of the ceramic honeycomb structure is closed, wherein the process for closing a part of the cell ends of an end surface of a honeycomb structure body fabricated with the cell ends open to the end surface includes the steps of:

acquiring the positional information on the cell ends using an image processing means for recognizing the positions of the cell ends;

attaching a film to said end surface of the honeycomb structure body in such a manner as to cover at least a part of the cell ends;

forming through holes by thermally melting or burning off the portions of the film located at the cell ends to be closed based on the positional information;

dipping said end surface in a slurry containing an end surface closing material and thereby causing the slurry to enter the cell ends by way of the through holes; and

hardening the slurry while at the same time removing the film,

wherein the through holes of the film are formed by radiating a high-density energy beam on the film and thereby melting or burning off the film, and wherein said through holes are formed using the high-density energy beam in such a manner that the high-density energy beam is radiated first at the center of each through hole to be formed and the position of radiation is relatively displaced spirally to increase the diameter of the through hole to the desired size,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface.

Claims 16–18. (canceled).

19. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 15, wherein said high-density energy beam is a laser beam.

Claims 20-22. (canceled).

23. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 1, 15 or 19, wherein the size of each through hole formed in the film attached to the cell ends is changed in accordance with the opening area of each cell end.

24. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 1, 15, or 19, wherein said through holes are formed substantially in a shape about the center of gravity of the opening area of each cell end.

25. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 1, 15, or 19, wherein said film is a resin film or a wax sheet.

Claims 26-29. (canceled).

30. (currently amended) A method of manufacturing a ceramic honeycomb structure, in which a part of the cell ends located on an end surface of the honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with the cell ends opened at the end surfaces and closing a part of the cell ends at an end surface of the honeycomb structure body, the cell end closing step including the substeps of;

attaching a film to said end surface of the honeycomb structure body in such a manner as to cover at least a part of the cell ends,

forming through holes by thermally melting or burning off the film located at the cell ends to be closed by radiating a high-density energy beam,

dipping said end surface in a slurry containing an end surface closing material thereby to cause the slurry to enter the cell ends by way of the through holes, and

hardening the slurry while at the same time removing the film,

wherein a transparent or translucent film is used and the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by an image processing means for recognizing the positions of the cell ends visually through the film attached to the end surface of the honeycomb structure body,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected ~~for each block~~, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface ~~end~~, and

wherein said image processing means collects the image data using a camera fixed in position while the honeycomb structure body is moved to locate each of the blocks sequentially within the range of visual field of the camera.

31. (currently amended) A method of manufacturing a ceramic honeycomb structure in which a part of the cell ends located on an end surface of the honeycomb structure are closed, comprising the steps of:

fabricating a honeycomb structure body with the cell ends opened at the end surfaces and closing a part of the cell ends at an end surface of the honeycomb structure body, the cell end closing step including the substeps of;

attaching a film to said end surface of the honeycomb structure body in such a manner as to cover at least a part of the cell ends,

forming through holes by thermally melting or burning off the film located at the cell ends to be closed by radiating a high-density energy beam,

dipping said end surface in a slurry containing an end surface closing material thereby to cause the slurry to enter the cell ends by way of the through holes, and

hardening the slurry while at the same time removing the film,

wherein a transparent or translucent film is used and the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by an image processing means for recognizing the positions of the cell ends visually through the film attached to the end surface of the honeycomb structure body,

wherein the image processing means produces the positional information of the cell ends in such a manner that said end surface of the honeycomb structure body is segmented into a plurality of blocks, for each of which the image data for an area including the particular block and a portion duplicated with at least a part of an adjacent block is collected ~~for each block~~, and the image data for all the blocks are coupled to each other by superposing the duplicated areas thereby to produce the positional information on the cell ends for the entire end surface ~~end~~, and

wherein said through holes are formed for each block, and in the presence of a block distant from any adjacent block immediately after completely forming the through holes for a given block, the through holes are formed for said distant block.

32. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 11 or 12, wherein the positions to be irradiated with the high-density energy beam are determined based on the positional information of the cell ends acquired by use of image processing means for recognizing the positions of the cell ends visually through the resin film attached to said end surfaces.

33. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 11 or 12, wherein the high-density energy beam is a laser beam.

34. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 1 or 15, wherein said through holes are formed so that none of the film remains in the respective cell ends.

35. (previously presented) A method of manufacturing a ceramic honeycomb structure according to claim 12, wherein the fluidity improver comprises at least one of a surface active agent having a surface lubrication effect and a surface active agent having a function to prevent surface charging.